THE JOURNAL

OF

COMPARATIVE NEUROLOGY

FOUNDED BY C. L. HERRICK, 1891

COPYRIGHT © THE WISTAR INSTITUTE PRESS 1977

EDITORIAL BOARD

W. MAXWELL COWAN, Managing Editor

EDWARD G. JONES
Washington University School of Medicine
Saint Louis, Missouri

JAY B. ANGEVINE, JR.
University of Arizona

THEODOR W. BLACKSTAD
University of Aarhus
Denmark

MILTON W. BRIGHTMAN
National Institutes of Health

RICHARD P. BUNGE
Washington University

MALCOLM B. CARPENTER
Columbia University

JOHN E. DOWLING
Harvard University

R. W. GUILLERY
University of Wisconsin

HARVEY J. KARTEN
State University of New York

LAWRENCE KRUGER
University of California
Los Angeles

SANFORD PALAY
Harvard Medical School

RICHARD L. SIDMAN
Harvard Medical School

JEROME SUTIN
Emory University

J. SZENTÁGOTHAI
Semmelweis University
Hungary

DAVID G. WHITLOCK
University of Colorado

VOLUME 173

MAY — JUNE 1977

PUBLISHED BY

THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY

PHILADELPHIA, PA.

COPYRIGHT © 1977 BY
THE WISTAR INSTITUTE PRESS
All rights reserved

Contents

No. 1 MAY 1, 1977

RICHARD R. SHIVERS AND MILTON W. BRIGHTMAN. Formation of Hemi-desmosomes during Regeneration of Crayfish Nerve Root Sheath as Studied with Freeze-Fracture 1

STEPHEN B. EDWARDS. The Commissural Projection of the Superior Colliculus in the Cat 23

JAMES VAUGHN, DEE ANN MATTHEWS, ROBERT P. BARBER, CYNTHIA C. WIMER AND RICHARD E. WIMER. Genetically-associated Variations in the Development of Hippocampal Pyramidal Neurons May Produce Differences in Mossy Fiber Connectivity 41

E. G. JONES, J. D. COULTER, H. BURTON AND R. PORTER. Cells of Origin and Terminal Distribution of Corticostriatal Fibers Arising in the Sensory-Motor Cortex of Monkeys 53

B. V. UPDYKE. Topographic Organization of the Projections from Cortical Areas 17, 18 and 19 onto the Thalamus, Pretectum and Superior Colliculus in the Cat 81

MILES HERKENHAM AND WALLE J. H. NAUTA. Afferent Connections of the Habenular Nuclei in the Rat. A Horseradish Peroxidase Study, with a Note on the Fiber-of-Passage Problem 123

H. KÜNZLE AND K. AKERT. Efferent Connections of Cortical, Area 8 (Frontal Eye Field) in *Macaca fascicularis*. A Reinvestigation Using the Autoradiographic Technique 147

PHIL M. E. WAITE. Normal Nerve Fibers in the Barrel Region of Developing and Adult Mouse Cortex 165

RICHARD E. COGGESHALL, DENNIS G. EMERY, HARUHIDE ITO AND CHRISTINE W. MAYNARD. Unmyelinated and Small Myelinated Axons in Rat Ventral Roots 175

ROBYN L. ANKER. The Prenatal Development of Some of the Visual Pathways in the Cat 185

DOROTHY A. SWISHER AND DORIS B. WILSON. Cerebellar Histogenesis in the Lurcher *(Lc)* Mutant Mouse 205

No. 2 MAY 15, 1977

WALT WILCZYNSKI AND R. GLENN NORTHCUTT. Afferents to the Optic Tectum of the Leopard Frog: An HRP Study 219

R. FRICKE AND W. M. COWAN. An Autoradiographic Study of the Development of the Entorhinal and Commissural Afferents to Dentate Gyrus of the Rat 231

PHILIP S. ULINSKI. Tectal Efferents in the Banded Water Snake, *Natrix sipedon* 251

MARK WM. DUBIN AND LINDA TURNER. Anatomy of the Retina of the Mink *(Mustela vison)* 275

R. D. LUND AND M. J. MUSTARI. Development of the Geniculocortical Pathway in Rats 289

L. LUCKENBILL-EDDS AND S. C. SHARMA. Retinotectal Projection of the Adult Winter Flounder *(Pseudopleuronectes americanus)* . 307

TERRY J. SIMS. The Development of Monoamine-containing Neurons in the Brain and Spinal Cord of the Salamander, *Ambystoma mexicanum* 319

EILEEN S. KANE. Descending Inputs to the Octopus Cell Area of the Cat Cochlear Nucleus: An Electron Microscopic Study 337

J. A ROBSON AND W. C. HALL. The Organization of the Pulvinar in the Grey Squirrel *(Sciurus carolinensis)*. I. Cytoarchitecture and Connections 355

J. A. ROBSON AND W. C. HALL. The Organization of the Pulvinar in the Grey Squirrel *(Sciurus carolinensis)*. II. Synaptic Organization and Comparisons with the Dorsal Lateral Geniculate Nucleus 389

No. 3 JUNE 1, 1977

ERIC I. KNUDSEN. Distinct Auditory and Lateral Line Nuclei in the Midbrain of catfishes 417

NARAYANAKURUP VIJAYASHANKAR AND HAROLD BRODY. A Study of Aging in the Human Abducens Nucleus 433

LAWRENCE H. MATHERS, JR. Postnatal Maturation of Neurons in the Rabbit Superior Colliculus 439

C. S. LIN AND J. H. KAAS. Projections from Cortical Visual Areas 17, 18, and MT onto the Dorsal Lateral Geniculate Nucleus in Owl Monkeys 457

DONALD M. MCDONALD AND GRANT L. RASMUSSEN. An Ultrastructural Analysis of Neurites in the Basal Lamina of Capillaries in the Chinchilla Cochlear Nucleus 475

CARLA J. SHATZ. Anatomy of Interhemispheric Connections in the Visual System of Boston Siamese and Ordinary Cats 497

HORSTMAR HOLLÄNDER AND HORACIO VANEGAS. The Projection from the Lateral Geniculate Nucleus onto the Visual Cortex in the Cat. A Quantitative Study with Horseradish-Peroxidase 519

LEX C. TOWNS, ROLAND A. GIOLLI AND DAVID A. HASTE. Corticocortical Fiber Connections of the Rabbit Visual Cortex: A Fiber Degeneration Study 537

SUSAN B. UDIN. Rearrangements of the Retinotectal Projection in *Rana Pipiens* after Unilateral Caudal Half-tectum Ablation 561

JOHN K. HARTING. Descending Pathways from the Superior Colliculus: An Autoradiographic Analysis in the Rhesus Monkey *(Macaca mulatta)* 583

No. 4 JUNE 15, 1977

JAMES J. KOKOROS AND R. GLENN NORTHCUTT. Telencephalic Efferents of the Tiger Salamander *Ambystoma tigrinum tigrinum* (Green) 613

JEAN GRAHAM. An Autoradiographic Study of the Efferent Connections of the Superior Colliculus in the Cat 629

J. F. CUMMINGS AND J. M. PETRAS. The Origin of Spinocerebellar Pathways. I. The Nucleus Cervicalis Centralis of the Cranial Cervical Spinal Cord..... 655

J. M. PETRAS AND J. F. CUMMINGS. The Origin of Spinocerebellar Pathways. II. The Nucleus Centrobasalis of the Cervical Enlargement and the Nucleus Dorsalis of the Thoracolumbar Spinal Cord..... 693

WILFRIED MEYER AND KARL IDEL. The Distribution of Acetylcholinesterase in the Central Nervous System of Jumping Spiders and Wolf Spiders *(Arachnida, Araneida: Salticidae et Lycosidae)* 717

M. A. MATTHEWS, C. H. NARAYANAN, Y. NARAYANAN AND M. F. ST. ONGE. Neuronal Maturation and Synaptogenesis in the Rat Ventrobasal Complex: Alignment with Developmental Changes in Rate and Severity of Axon Reaction 745

H. BURTON AND A. D. LOEWY. Projections to the Spinal Cord from Medullary Somatosensory Relay Nuclei 773

Index to Volume 173 793